



FC-4-1.ST25.txt
SEQUENCE LISTING

<110> Wisnewski, Nancy
Becher, Anna M.
Jarvis, Eric

<120> NOVEL FLEA ECDYSONE AND ULTRASPIRACLE NUCLEIC ACID MOLECULES, PROTEINS
AND USES THEREOF

<130> FC-4-1

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<141> 2002-09-25

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<151> 1999-11-05

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<170> PatentIn version 3.1

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 65 70 75
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 Thr Gln Val Pro Leu Gly Leu Pro Ala Met Asp Leu Pro His Thr Pro
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Asp Ile Leu Pro Ala Val Met Lys Cys Asp Pro Leu Pro Pro Glu Ala
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Thr Lys Val Lys Phe Leu Ser Asp Lys Ile Leu Ala Glu Asn Arg Ile
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Phe Ala Lys Gly Leu Pro Ala Phe Thr Lys Ile Pro Gln Glu Asp Gln
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Pro Lys Cys Gly Ile Leu Phe Ala Lys Leu Leu Ser Ile Leu Thr Glu
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Leu Lys Asn Arg Lys Leu Pro Arg Phe Leu Glu Glu Ile Trp Asp Val
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Leu Ala Ala Leu Ser Pro Ala Ser Leu Gly Ser Pro Glu Thr Tyr Ala						
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gag ctg gat ttg tgg gtg tac gag gaa gct ggc tta cat cca ggt tca						192
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FC-4-1.ST25.txt

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tgc ggc gac cgt gcc tcc gga tat cat tac aac gct ctt act tgt gaa															480
Cys	Gly	Asp	Arg	Ala	Ser	Gly	Tyr	His	Tyr	Asn	Ala	Leu	Thr	Cys	Glu
145						150			155			160			
gga tgc aaa ggt ttt ttc cga cga agt gtg act aag aat gcc gtg tac															528
Gly	Cys	Lys	Gly	Phe	Phe	Arg	Arg	Ser	Val	Thr	Lys	Asn	Ala	Val	Tyr
165						170				175					
gtg tgc aag ttt ggg cac acg tgc gaa atg gac atg tat atg cga cgc															576
Val	Cys	Lys	Phe	Gly	His	Thr	Cys	Glu	Met	Asp	Met	Tyr	Met	Arg	Arg
180						185				190					
aaa tgt cag gaa tgt agg ctc aag aaa tgt ttg gct gtc gga atg cgc															624
Lys	Cys	Gln	Glu	Cys	Arg	Leu	Lys	Lys	Cys	Leu	Ala	Val	Gly	Met	Arg
195						200			205						
ccc gag tgc gtg gtt ccc gaa aac caa tgc gcc atg aag cga aag gaa															672
Pro	Glu	Cys	Val	Val	Pro	Glu	Asn	Gln	Cys	Ala	Met	Lys	Arg	Lys	Glu
210						215			220						
aag aag gca cag aag gaa aag gac atc gga cca ata tca ggt acc gtt															720
Lys	Lys	Ala	Gln	Lys	Glu	Lys	Asp	Ile	Gly	Pro	Ile	Ser	Gly	Thr	Val
225						230			235			240			
gga aaa tct gct ccc tta gcg aat tct gca tta ctt cag aag cct															768
Gly	Lys	Ser	Ala	Ala	Pro	Leu	Ala	Asn	Ser	Ala	Leu	Leu	Gln	Lys	Pro
245						250			255						
gat att ttg cct gcg gtc atg aaa tgc gac cca tta cct cca gaa gca															816
Asp	Ile	Leu	Pro	Ala	Val	Met	Lys	Cys	Asp	Pro	Leu	Pro	Pro	Glu	Ala
260						265			270						
act aaa gtg aaa ttt ttg tca gac aag att ctt gct gaa aac aga att															864
Thr	Lys	Val	Lys	Phe	Leu	Ser	Asp	Lys	Ile	Leu	Ala	Glu	Asn	Arg	Ile
275						280			285						
cga aat gtt cca cct ttg act gca aat caa gaa tat gtg atc gca aga															912
Arg	Asn	Val	Pro	Pro	Leu	Thr	Ala	Asn	Gln	Glu	Tyr	Val	Ile	Ala	Arg
290						295			300						
tta gtg tgg tac caa gat gga tat gaa caa cct tct gag gaa gac cta															960
Leu	Val	Trp	Tyr	Gln	Asp	Gly	Tyr	Glu	Gln	Pro	Ser	Glu	Glu	Asp	Leu
305						310			315			320			
cga agg ata atg ata agt aca cca gct gaa gat gaa gct ctt gaa ttt															1008
Arg	Arg	Ile	Met	Ile	Ser	Thr	Pro	Ala	Glu	Asp	Glu	Ala	Leu	Glu	Phe
325						330			335						

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cg g cat ata act gaa att acc ata ctt act gtg cag ctt ata gtg gaa		1056	
Arg His Ile Thr Glu Ile Thr Ile Leu Thr Val Gln Leu Ile Val Glu			
340	345	350	
ttt gca aag ggt tta cca gct ttt acc aaa ata cca caa gaa gat caa		1104	
Phe Ala Lys Gly Leu Pro Ala Phe Thr Lys Ile Pro Gln Glu Asp Gln			
355	360	365	
ata aca tta tta aag gca tgt tca agt gaa gta atg atg ctg cga atg		1152	
Ile Thr Leu Leu Lys Ala Cys Ser Ser Glu Val Met Met Leu Arg Met			
370	375	380	
gct cg g tac gat gca gtg tcg gat tca atc tta ttc gcg aat aat		1200	
Ala Arg Arg Tyr Asp Ala Val Ser Asp Ser Ile Leu Phe Ala Asn Asn			
385	390	395	400
cgt tca tat act cgt gac tcc tat aaa atg gct ggt atg gca gat aca		1248	
Arg Ser Tyr Thr Arg Asp Ser Tyr Lys Met Ala Gly Met Ala Asp Thr			
405	410	415	
ata gaa gat cta ttg cat ttt tgt cga cag atg tat act atg act gta		1296	
Ile Glu Asp Leu Leu His Phe Cys Arg Gln Met Tyr Thr Met Thr Val			
420	425	430	
gac aat gtg gag tat gca cta ata aca gca att gtg att ttt tca gat		1344	
Asp Asn Val Glu Tyr Ala Leu Ile Thr Ala Ile Val Ile Phe Ser Asp			
435	440	445	
cga cct gga ttg gaa caa gca gat ctt gtg gaa caa att caa agt tat		1392	
Arg Pro Gly Leu Glu Gln Ala Asp Leu Val Glu Gln Ile Gln Ser Tyr			
450	455	460	
ta c atc aaa aca tta aag tgc tac att ttg aat cga cat agt ggt gac		1440	
Tyr Ile Lys Thr Leu Lys Cys Tyr Ile Leu Asn Arg His Ser Gly Asp			
465	470	475	480
cct aag tgt gga ata ttg ttt gcc aaa ctt ctt tct att ctt act gaa		1488	
Pro Lys Cys Gly Ile Leu Phe Ala Lys Leu Leu Ser Ile Leu Thr Glu			
485	490	495	
tta cgc acg tta gga aat caa aac tca gaa atg tgt ttt gca ctg aaa		1536	
Leu Arg Thr Leu Gly Asn Gln Asn Ser Glu Met Cys Phe Ala Leu Lys			
500	505	510	
ttg aag aac aga aaa ctt cct aga ttt tta gaa gaa att tgg gat gtg		1584	
Leu Lys Asn Arg Lys Leu Pro Arg Phe Leu Glu Glu Ile Trp Asp Val			
515	520	525	
aca gat aat gtg cct cct acg ata gac agc atg cat agt gta tcg gag		1632	
Thr Asp Asn Val Pro Pro Thr Ile Asp Ser Met His Ser Val Ser Glu			
530	535	540	
aat ttc tat aat aat gaa agt aat ggt acc agt gat tct aca cca atg		1680	
Asn Phe Tyr Asn Asn Glu Ser Asn Gly Thr Ser Asp Ser Thr Pro Met			
545	550	555	560

<210> 9
<211> 560

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<212> PRT

<213> Ctenocephalides felis

<400> 9

Met Lys Arg Arg Trp Ser Asn Asn Gly Gly Phe Gln Thr Leu Arg Met
1 5 10 15

Leu Glu Asp Val Ala Ser Gly Glu Val Thr Ser Ser Ser Gly Gly Ala
20 25 30

Leu Ala Ala Leu Ser Pro Ala Ser Leu Gly Ser Pro Glu Thr Tyr Ala
35 40 45

Glu Leu Asp Leu Trp Val Tyr Glu Glu Ala Gly Leu His Pro Gly Ser
50 55 60

Gly Val Gln Gly Cys Gly Ala Val Ala Ala Leu Pro Ser Ile Ala Thr
65 70 75 80

Gln Val Pro Leu Gly Leu Pro Ala Met Asp Leu Pro His Thr Pro Arg
85 90 95

Ser Asp Ser Ala Gly Ser Ile Ser Ser Gly Arg Glu Asp Leu Ser Pro
100 105 110

Pro Ser Ser Leu Asn Gly Tyr Ser Ala Asp Gly Cys Glu Ala Lys Lys
115 120 125

Ala Lys Lys Gly Pro Ala Pro Arg Gln Gln Glu Glu Leu Cys Leu Val
130 135 140

Cys Gly Asp Arg Ala Ser Gly Tyr His Tyr Asn Ala Leu Thr Cys Glu
145 150 155 160

Gly Cys Lys Gly Phe Phe Arg Arg Ser Val Thr Lys Asn Ala Val Tyr
165 170 175

Val Cys Lys Phe Gly His Thr Cys Glu Met Asp Met Tyr Met Arg Arg
180 185 190

Lys Cys Gln Glu Cys Arg Leu Lys Lys Cys Leu Ala Val Gly Met Arg
195 200 205

Pro Glu Cys Val Val Pro Glu Asn Gln Cys Ala Met Lys Arg Lys Glu
210 215 220

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Lys Lys Ala Gln Lys Glu Lys Asp Ile Gly Pro Ile Ser Gly Thr Val
225 230 235 240

Gly Lys Ser Ala Ala Pro Leu Ala Asn Ser Ala Leu Leu Gln Lys Pro
245 250 255

Asp Ile Leu Pro Ala Val Met Lys Cys Asp Pro Leu Pro Pro Glu Ala
260 265 270

Thr Lys Val Lys Phe Leu Ser Asp Lys Ile Leu Ala Glu Asn Arg Ile
275 280 285

Arg Asn Val Pro Pro Leu Thr Ala Asn Gln Glu Tyr Val Ile Ala Arg
290 295 300

Leu Val Trp Tyr Gln Asp Gly Tyr Glu Gln Pro Ser Glu Glu Asp Leu
305 310 315 320

Arg Arg Ile Met Ile Ser Thr Pro Ala Glu Asp Glu Ala Leu Glu Phe
325 330 335

Arg His Ile Thr Glu Ile Thr Ile Leu Thr Val Gln Leu Ile Val Glu
340 345 350

Phe Ala Lys Gly Leu Pro Ala Phe Thr Lys Ile Pro Gln Glu Asp Gln
355 360 365

Ile Thr Leu Leu Lys Ala Cys Ser Ser Glu Val Met Met Leu Arg Met
370 375 380

Ala Arg Arg Tyr Asp Ala Val Ser Asp Ser Ile Leu Phe Ala Asn Asn
385 390 395 400

Arg Ser Tyr Thr Arg Asp Ser Tyr Lys Met Ala Gly Met Ala Asp Thr
405 410 415

Ile Glu Asp Leu Leu His Phe Cys Arg Gln Met Tyr Thr Met Thr Val
420 425 430

Asp Asn Val Glu Tyr Ala Leu Ile Thr Ala Ile Val Ile Phe Ser Asp
435 440 445

Arg Pro Gly Leu Glu Gln Ala Asp Leu Val Glu Gln Ile Gln Ser Tyr

450

455

460

Tyr Ile Lys Thr Leu Lys Cys Tyr Ile Leu Asn Arg His Ser Gly Asp
 465 470 475 480

Pro Lys Cys Gly Ile Leu Phe Ala Lys Leu Leu Ser Ile Leu Thr Glu
 485 490 495

Leu Arg Thr Leu Gly Asn Gln Asn Ser Glu Met Cys Phe Ala Leu Lys
 500 505 510

Leu Lys Asn Arg Lys Leu Pro Arg Phe Leu Glu Glu Ile Trp Asp Val
 515 520 525

Thr Asp Asn Val Pro Pro Thr Ile Asp Ser Met His Ser Val Ser Glu
 530 535 540

Asn Phe Tyr Asn Asn Glu Ser Asn Gly Thr Ser Asp Ser Thr Pro Met
 545 550 555 560

<210> 10
 <211> 1680
 <212> DNA
 <213> Ctenocephalides felis

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 atgcatgctg tctatcgtag gaggcacatt atctgtcaca tcccaaattt cttctaaaaa 120
 tcttaggaagt tttctgttct tcaatttcag tgcaaaacac atttctgagt tttgattcc 180
 taacgtgcgt aattcagtaa gaatagaaag aagtttggca aacaatattc cacacttagg 240
 gtcaccacta tgcgttca aatgttagca cttaatgtt ttgatgtaat aactttgaat 300
 ttgttccaca agatctgctt gttccaatcc aggtcgatct gaaaaaatca caattgctgt 360
 tattatgtca tactccacat tgtctacagt catagtatac atctgtcgac aaaaatgcaa 420
 tagatcttct attgtatctg ccataccagc cattttatag gagtcacgag tatatgaacg 480
 attattcgcg aataagattt aatccgacac tgcgttac cggcgagcca ttgcagcat 540
 cattacttca cttgaacatg ctttaataa ttttatttga ttttcttgcgt gtattttgg 600
 aaaaagctggtaaaccctttg caaattccac tataagctgc acagtaagta tggtaatttc 660
 agtttatatgc cgaaattcaa gagtttcatc ttcatgttgcgt gtacttatca ttatccttcg 720
 taggtttcc tcagaagggtt gttcatatcc atcttgcgtac cacactaattc ttgcgtac 780

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gtctgacaaa	aatttcactt	tagttgcTTc	tggaggtaat	gggtcgCATT	tcatgaccgc	900
aggcaaaata	tcaggcTTCT	gaagtaatgc	agaattcgCT	aagggagcAG	cagatttcc	960
aacggtaacct	gatattggTC	cgatgtccTT	ttcTTCTGT	gcTTCTTT	cTTTcgCTT	1020
catggcgcat	tggTTTCGG	gaaccacgca	ctcgGGGCGC	attccgacAG	ccaaacattt	1080
ctttaggccta	cattcctgac	atttgcgtcg	catatacatg	tccatttcgc	acgtgtgccc	1140
aaacttgcac	acgtacacgg	cattcttagt	cacacttgcT	cgaaaaaaAC	ctttgcattc	1200
ttcacaagta	agagcgTTgt	aatgatatcc	ggaggcacgg	tcgcccgcaca	caagacatag	1260
ttcctcctgc	tgccgcggcg	ccggccCTT	cttggcTTc	ttcgTTcgc	agccatctgc	1320
tgaatagccg	ttcaaagaAC	taggcggTGA	caggTCTTCT	cgtcctgatg	agatgctacc	1380
cgcactgtca	ctccgaggcg	tgtgcggtag	gtccatagcg	ggcaatccta	gggggacctg	1440
tgtcgcgatc	gatggcaagg	cggcgaccgc	accgcattc	tgcacacctg	aacctggatg	1500
taagccagct	tcctcgtaca	cccacaaATC	cagctcggca	tatgtctcgg	gcgaacctaa	1560
cgaagccgga	ctcaacgcag	ccagggcgCC	accagaAGAC	gacgttacct	caccagatgc	1620
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<210> 11
 <211> 666
 <212> DNA
 <213> Ctenocephalides felis

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	aaaatagttc	attgaatata	atacggTTc	attcgtaatg	tttcgagcgg	ttacaaatct	120
	tgcaaattct	tctgatggaa	ctgtttgaa	cgaagttata	catgaagatc	ttctgcttaa	180
	atgtgaaccc	tctactagcg	tggacgcatt	atctaATGGA	gctttcggtA	gcaagcagca	240
	gcacaaagtc	gaagaatgga	agcgatcacc	tagtcccagt	ttgacgaaca	gccatgtgcc	300
	acctctcaca	ccatcaccag	gcccatccag	cttaccatAT	tcgacattgt	ctaattggcta	360
	ttcttcgcca	atgtcgTCAG	gcagctgcga	tccctatAGC	cctaATGGTA	aaatgggacg	420
	agaagacctg	tcacccgccta	gttctttgaa	cggctattca	gcagatggct	gcgaagcga	480
	gaaggccaag	aaaggGCCGG	cgccgcggca	acaggaggaa	ctatgtttG	tgtgcggcga	540
	ccgtgcctcc	ggatATCATT	acaacgcTCT	tacttgcAA	ggatgcAAAG	ggTTTTCCG	600
	acgaagtgtg	actaagaatg	ccgtgtacgt	gttcaagttt	gggcacacgt	gcgaaaatgg	660

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acatgt

666

<210> 12
<211> 666
<212> DNA
<213> Ctenocephalides felis

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gcacggtcgc cgcacacaag acatagttcc tcctgttgcc gcggcgccgg cccttcttg 180
gccttcttcg cttcgagcc atctgctgaa tagccgttca aagaactagg cggtgacagg 240
tcttcgtc ccattttacc attagggcta tagggatcgc agctgcctga cgacattggc 300
gaagaatagc cattagacaa tgtcgaatat ggtaagctgg atgggcctgg ttaggtgtg 360
agaggtggca catggctgtt cgtcaaactg ggacttaggtg atcgcttcca ttcttcgact 420
tttgctgct gcttgctacc gaaagctcca ttagataatg cgtccacgct agtagagggt 480
tcacatttaa gcagaagatc ttcatttata acttcgttca aaacagttcc atcagaagaa 540
tttgcaagat ttgttaaccgc tcgaaacatt acgaatgaaa ccgtattata ttcaatgaac 600
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gcaaat 666

<210> 13
<211> 4148
<212> DNA
<213> Ctenocephalides felis

<220>
<221> CDS
<222> (184)..(1869)
<223>

<400> 13
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acatgtattt acaaaaaata agtaaaaaaa tagttcattt aatataatac ggtttcattc 180
gta atg ttt cga gcg gtt aca aat ctt gca aat tct tct gat gga act 228
Met Phe Arg Ala Val Thr Asn Leu Ala Asn Ser Ser Asp Gly Thr
1 5 10 15
gtt ttg aac gaa gtt ata cat gaa gat ctt ctg ctt aaa tgt gaa ccc 276
Val Leu Asn Glu Val Ile His Glu Asp Leu Leu Leu Lys Cys Glu Pro
20 25 30

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tct act agc gtg gac gca tta tct aat gga gct ttc ggt agc aag cag	324
Ser Thr Ser Val Asp Ala Leu Ser Asn Gly Ala Phe Gly Ser Lys Gln	
35 40 45	
cag cac aaa gtc gaa gaa tgg aag cga tca cct agt ccc agt ttg acg	372
Gln His Lys Val Glu Glu Trp Lys Arg Ser Pro Ser Pro Ser Leu Thr	
50 55 60	
aac agc cat gtg cca cct ctc aca cca tca cca ggc cca tcc agc tta	420
Asn Ser His Val Pro Pro Leu Thr Pro Ser Pro Gly Pro Ser Ser Leu	
65 70 75	
cca tat tcg aca ttg tct aat ggc tat tct tcg cca atg tcg tca ggc	468
Pro Tyr Ser Thr Leu Ser Asn Gly Tyr Ser Ser Pro Met Ser Ser Gly	
80 85 90 95	
agc tgc gat ccc tat agc cct aat ggt aaa atg gga cga gaa gac ctg	516
Ser Cys Asp Pro Tyr Ser Pro Asn Gly Lys Met Gly Arg Glu Asp Leu	
100 105 110	
tca ccg cct agt tct ttg aac ggc tat tca gca gat ggc tgc gaa gcg	564
Ser Pro Pro Ser Ser Leu Asn Gly Tyr Ser Ala Asp Gly Cys Glu Ala	
115 120 125	
aag aag gcc aag aaa ggg ccg gcg ccg cgg cag cag gag gaa cta tgt	612
Lys Lys Ala Lys Lys Gly Pro Ala Pro Arg Gln Gln Glu Glu Leu Cys	
130 135 140	
ctt gtg tgc ggc gac cgt gcc tcc gga tat cat tac aac gct ctt act	660
Leu Val Cys Gly Asp Arg Ala Ser Gly Tyr His Tyr Asn Ala Leu Thr	
145 150 155	
tgt gaa gga tgc aaa ggt ttt ttc cga cga agt gtg act aag aat gcc	708
Cys Glu Gly Cys Lys Gly Phe Phe Arg Arg Ser Val Thr Lys Asn Ala	
160 165 170 175	
gtg tac gtg tgc aag ttt ggg cac acg tgc gaa atg gac atg tat atg	756
Val Tyr Val Cys Lys Phe Gly His Thr Cys Glu Met Asp Met Tyr Met	
180 185 190	
cga cgc aaa tgt cag gaa tgt agg ctc aag aaa tgt ttg gct gtc gga	804
Arg Arg Lys Cys Gln Glu Cys Arg Leu Lys Lys Cys Leu Ala Val Gly	
195 200 205	
atg cgc ccc gag tgc gtg gtt ccc gaa aac caa tgc gcc atg aag cga	852
Met Arg Pro Glu Cys Val Val Pro Glu Asn Gln Cys Ala Met Lys Arg	
210 215 220	
aag gaa aag aag gca cag aag gaa aag gac atc gga cca ata tca ggt	900
Lys Glu Lys Lys Ala Gln Lys Glu Lys Asp Ile Gly Pro Ile Ser Gly	
225 230 235	
acc gtt gga aaa tct gct gct ccc cta gcg aat tct gca tta ctt cag	948
Thr Val Gly Lys Ser Ala Ala Pro Leu Ala Asn Ser Ala Leu Leu Gln	
240 245 250 255	
aag cct gat att ttg cct gcg gtc atg aaa tgc gac cca tta cct cca	996
Lys Pro Asp Ile Leu Pro Ala Val Met Lys Cys Asp Pro Leu Pro Pro	

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260

265

270

gaa gca act aaa gtg aaa ttt ttg tca gac aag att ctt gct gaa aac Glu Ala Thr Lys Val Lys Phe Leu Ser Asp Lys Ile Leu Ala Glu Asn 275 280 285	1044
aga att cga aat gtt cca cct ttg act gca aat caa gaa tat gtg atc Arg Ile Arg Asn Val Pro Pro Leu Thr Ala Asn Gln Glu Tyr Val Ile 290 295 300	1092
gca aga tta gtg tgg tac caa gat gga tat gaa caa cct tct gag gaa Ala Arg Leu Val Trp Tyr Gln Asp Gly Tyr Glu Gln Pro Ser Glu Glu 305 310 315	1140
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cga atg gct cgg cgg tac gat gca gtg tcg gat tca atc tta ttc gcg Arg Met Ala Arg Arg Tyr Asp Ala Val Ser Asp Ser Ile Leu Phe Ala 385 390 395	1380
aat aat cgt tca tat act cgt gac tcc tat aaa atg gct ggt atg gca Asn Asn Arg Ser Tyr Thr Arg Asp Ser Tyr Lys Met Ala Gly Met Ala 400 405 410 415	1428
gat aca ata gaa gat cta ttg cat ttt tgt cga cag atg tat act atg Asp Thr Ile Glu Asp Leu Leu His Phe Cys Arg Gln Met Tyr Thr Met 420 425 430	1476
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tca gat cga cct gga ttg gaa caa gca gat ctt gtg gaa caa att caa Ser Asp Arg Pro Gly Leu Glu Gln Ala Asp Leu Val Glu Gln Ile Gln 450 455 460	1572
agt tat tac atc aaa aca tta aag tgc tac att ttg aat cga cat agt Ser Tyr Tyr Ile Lys Thr Leu Lys Cys Tyr Ile Leu Asn Arg His Ser 465 470 475	1620
ggt gac cct aag tgt gga ata ttg ttt gcc aaa ctt ctt tct att ctt Gly Asp Pro Lys Cys Gly Ile Leu Phe Ala Lys Leu Leu Ser Ile Leu 480 485 490 495	1668
act gaa tta cgc acg tta gga aat caa aac tca gaa atg tgt ttt gca	1716

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Thr	Glu	Leu	Arg	Thr	Leu	Gly	Asn	Gln	Asn	Ser	Glu	Met	Cys	Phe	Ala			
500																510		
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Leu	Lys	Leu	Lys	Asn	Arg	Lys	Leu	Pro	Arg	Phe	Leu	Glu	Glu	Ile	Trp			
515															525			
gat	gtg	aca	gat	aat	gtg	cct	cct	acg	ata	gac	agc	atg	cat	agt	gta	1812		
Asp	Val	Thr	Asp	Asn	Val	Pro	Pro	Thr	Ile	Asp	Ser	Met	His	Ser	Val			
530															540			
tcg	gag	aat	ttc	tat	aat	aat	gaa	agt	aat	ggt	acc	agt	gat	tct	aca	1860		
Ser	Glu	Asn	Phe	Tyr	Asn	Asn	Glu	Ser	Asn	Gly	Thr	Ser	Asp	Ser	Thr			
545															555			
ccg	atg	taa	agt	gtc	caga	aaat	caac	ag	ct	ctt	ttg	ca	tat	ttt	gtt	ta	1909	
Pro	Met																	
560																		
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ggagaatt	gt	ttt	ggat	taa	at	ttt	tg	ttt	gca	aa	cc	ttt	ttt	ttt	ttt		2389	
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tgctgca	acc	ctc	ac	ac	gag	aat	ac	ata	act	ac	at	at	gt	ca	at	gt		2509
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Ser His Val Pro Pro Leu Thr Pro Ser Pro Gly Pro Ser Ser Leu Pro
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Pro Pro Ser Ser Leu Asn Gly Tyr Ser Ala Asp Gly Cys Glu Ala Lys
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Glu Gly Cys Lys Gly Phe Phe Arg Arg Ser Val Thr Lys Asn Ala Val
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Pro Asp Ile Leu Pro Ala Val Met Lys Cys Asp Pro Leu Pro Pro Glu
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275 280 285

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Lys Leu Lys Asn Arg Lys Leu Pro Arg Phe Leu Glu Glu Ile Trp Asp
515 520 525

Val Thr Asp Asn Val Pro Pro Thr Ile Asp Ser Met His Ser Val Ser

530

535

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260

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270

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Gln Ile Thr Leu Leu Lys Ala Cys Ser Ser Glu Val Met Met Leu Arg			
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385	390	395	400
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Asn Arg Ser Tyr Thr Arg Asp Ser Tyr Lys Met Ala Gly Met Ala Asp			
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Thr Ile Glu Asp Leu Leu His Phe Cys Arg Gln Met Tyr Thr Met Thr			
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Asp Pro Lys Cys Gly Ile Leu Phe Ala Lys Leu Leu Ser Ile Leu Thr			
485	490	495	
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<400> 17

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His Lys Val Glu Glu Trp Lys Arg Ser Pro Ser Pro Ser Leu Thr Asn
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Ser His Val Pro Pro Leu Thr Pro Ser Pro Gly Pro Ser Ser Leu Pro
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Tyr Ser Thr Leu Ser Asn Gly Tyr Ser Ser Pro Met Ser Ser Gly Ser
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Cys Asp Pro Tyr Ser Pro Asn Gly Lys Met Gly Arg Glu Asp Leu Ser
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Lys Ala Lys Lys Gly Pro Ala Pro Arg Gln Gln Glu Glu Leu Cys Leu
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Tyr Val Cys Lys Phe Gly His Thr Cys Glu Met Asp Met Tyr Met Arg
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Arg Lys Cys Gln Glu Cys Arg Leu Lys Lys Cys Leu Ala Val Gly Met
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Arg Pro Glu Cys Val Val Pro Glu Asn Gln Cys Ala Met Lys Arg Lys
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Val Gly Lys Ser Ala Ala Pro Leu Ala Asn Ser Ala Leu Leu Gln Lys
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Pro Asp Ile Leu Pro Ala Val Met Lys Cys Asp Pro Leu Pro Pro Glu
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Arg Leu Val Trp Tyr Gln Asp Gly Tyr Glu Gln Pro Ser Glu Glu Asp
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Phe Arg His Ile Thr Glu Ile Thr Ile Leu Thr Val Gln Leu Ile Val
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FC-4-1.ST25.txt

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Val Asp Asn Val Glu Tyr Ala Leu Ile Thr Ala Ile Val Ile Phe Ser
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FC-4-1.ST25.txt

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<212> DNA
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FC-4-1.ST25.txt

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FC-4-1.ST25.txt

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FC-4-1.ST25.txt

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<210> 25

FC-4-1.ST25.txt

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FC-4-1.ST25.txt

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gct	tcc	ggg	aag	cat	tat	ggt	gtt	tac	agt	tgc	gaa	ggt	tgt	aag	gga	638
Ala	Ser	Gly	Lys	His	Tyr	Gly	Val	Tyr	Ser	Cys	Glu	Gly	Cys	Lys	Gly	
100															110	
105																
ttt	ttc	aaa	cg	ac	gt	ca	aaa	gat	ct	ac	tat	g	c	tg	ca	686
Phe	Phe	Lys	Arg	Thr	Val	Arg	Lys	Asp	Leu	Thr	Tyr	Ala	Cys	Arg	Glu	
115															125	
120																
gat	aga	aat	tgt	ttg	atc	gac	aaa	agg	cag	aga	aat	cga	tgt	cag	ttc	734
Asp	Arg	Asn	Cys	Leu	Ile	Asp	Lys	Arg	Gln	Arg	Asn	Arg	Cys	Gln	Phe	
130															140	
135																
tgt	cga	tat	cag	aaa	tgt	ctc	g	cc	tgt	g	aa	g	cc	gt	782	
Cys	Arg	Tyr	Gln	Lys	Cys	Leu	Ala	Cys	Gly	Met	Lys	Arg	Glu	Ala	Val	
145															155	
150																
cag	gaa	gaa	cga	caa	cga	gga	gca	aag	aat	aat	gaa	gaa	agc	aac	ccg	830
Gln	Glu	Glu	Arg	Gln	Arg	Gly	Ala	Lys	Asn	Asn	Glu	Glu	Ser	Asn	Pro	
160															175	
165																
aca	agt	tct	gtt	cgt	gat	tta	ac	gt	gaa	aga	att	tta	gaa	gca	gaa	878
Thr	Ser	Val	Arg	Asp	Leu	Thr	Val	Glu	Arg	Ile	Leu	Glu	Ala	Glu		
180															190	
185																
caa	agg	agt	gaa	act	cga	aat	gtt	g	cc	gac	cc	gaa	tt	tc	ata	926
Gln	Arg	Ser	Glu	Thr	Arg	Asn	Val	Ala	Thr	Asp	Pro	Glu	Leu	Ser	Ile	
195															205	
200																
caa	tat	ttg	cga	gta	gga	cct	tca	tcc	atg	gt	cct	cct	aga	tac	aag	974
Gln	Tyr	Leu	Arg	Val	Gly	Pro	Ser	Ser	Met	Val	Pro	Pro	Arg	Tyr	Lys	
210															220	
215																
ggc	cct	gta	tcc	agt	ctg	tgt	cag	caa	gca	aat	aaa	cag	tta	tat	cag	1022
Gly	Pro	Val	Ser	Ser	Leu	Cys	Gln	Gln	Ala	Asn	Lys	Gln	Leu	Tyr	Gln	
225															235	
230																
tta	gta	caa	tac	gca	agg	tgc	atg	ccg	cat	ttt	agt	gct	tta	caa	tta	1070
Leu	Val	Gln	Tyr	Ala	Arg	Cys	Met	Pro	His	Phe	Ser	Ala	Leu	Gln	Leu	

FC-4-1.ST25.txt

240	245	250	255	
gag gat caa gta acg tta ctc aga gca gcc tgg aat gaa tta ctt ata				1118
Glu Asp Gln Val Thr Leu Leu Arg Ala Ala Trp Asn Glu Leu Leu Ile				
260	265	270		
gca tct ata gcc tgg aga agt att gag tat cta gaa tcc gat gca gaa				1166
Ala Ser Ile Ala Trp Arg Ser Ile Glu Tyr Leu Glu Ser Asp Ala Glu				
275	280	285		
aca agt acg tcc agt atg tct agt gat act tca aca agg aga cgc gct				1214
Thr Ser Thr Ser Met Ser Ser Asp Thr Ser Thr Arg Arg Arg Ala				
290	295	300		
cca cca gga ccg cct gaa tta atg tgt ttc ttt cct ggt atg acg tta				1262
Pro Pro Gly Pro Pro Glu Leu Met Cys Phe Phe Pro Gly Met Thr Leu				
305	310	315		
cat cgg aat agt gca atc cag gct ggc gtc gga cct att ttc gat cgg				1310
His Arg Asn Ser Ala Ile Gln Ala Gly Val Gly Pro Ile Phe Asp Arg				
320	325	330	335	
gta ctg tca gaa tta agt gtc aaa atg aga aga atg gat ttg gac aga				1358
Val Leu Ser Glu Leu Ser Val Lys Met Arg Arg Met Asp Leu Asp Arg				
340	345	350		
gca gaa tta ggc tgt ttg aag gct ata ata ctg ttt aat cct gat att				1406
Ala Glu Leu Gly Cys Leu Lys Ala Ile Ile Leu Phe Asn Pro Asp Ile				
355	360	365		
cga gga ctg aaa tgt aga cag gaa gtg gat gct tta cga gaa aag gtt				1454
Arg Gly Leu Lys Cys Arg Gln Glu Val Asp Ala Leu Arg Glu Lys Val				
370	375	380		
tac gcg tgc ctg gac gag cat tgc agg acg cag cat cca gcg gaa gag				1502
Tyr Ala Cys Leu Asp Glu His Cys Arg Thr Gln His Pro Ala Glu Glu				
385	390	395		
ggt cgt ttc gca gcc ctg ctg ctc gtc ctg cca gct ctg agg tca atc				1550
Gly Arg Phe Ala Ala Leu Leu Arg Leu Pro Ala Leu Arg Ser Ile				
400	405	410	415	
tct ttg aaa tgt ctc gat cac ctg ttt ttc ttc aga ttg att ggc gat				1598
Ser Leu Lys Cys Leu Asp His Leu Phe Phe Arg Leu Ile Gly Asp				
420	425	430		
acg ccg ctt gag agt ttt ctt gtg gat tta ctc gag gcc gga ccg atc				1646
Thr Pro Leu Glu Ser Phe Leu Val Asp Leu Leu Glu Ala Gly Pro Ile				
435	440	445		
ggt tga gccgattcat ggataaaaga taagtttat gtattaagat gagaataagt				1702
Gly				
aaatattctg caaagttatt tttctgcac gaatattct acaagca				1749

<210> 27
<211> 448

FC-4-1.ST25.txt

<212> PRT

<213> Ctenocephalides felis

<400> 27

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20 25 30

Leu Leu Asn Gly Gly Phe Ser Pro Gly Ser Gly Gly Ala Val Val Gly
35 40 45

Ser Pro Ala Ser Pro Pro Phe Gly Gln Asn His Thr Ile Val Ser Gly
50 55 60

Asn Thr Ala Thr Gly Ala Gln Thr Lys Ser Pro Tyr Pro Pro Asn His
65 70 75 80

Pro Leu Ser Gly Ser Lys His Leu Cys Ser Ile Cys Gly Asp Arg Ala
85 90 95

Ser Gly Lys His Tyr Gly Val Tyr Ser Cys Glu Gly Cys Lys Gly Phe
100 105 110

Phe Lys Arg Thr Val Arg Lys Asp Leu Thr Tyr Ala Cys Arg Glu Asp
115 120 125

Arg Asn Cys Leu Ile Asp Lys Arg Gln Arg Asn Arg Cys Gln Phe Cys
130 135 140

Arg Tyr Gln Lys Cys Leu Ala Cys Gly Met Lys Arg Glu Ala Val Gln
145 150 155 160

Glu Glu Arg Gln Arg Gly Ala Lys Asn Asn Glu Glu Ser Asn Pro Thr
165 170 175

Ser Ser Val Arg Asp Leu Thr Val Glu Arg Ile Leu Glu Ala Glu Gln
180 185 190

Arg Ser Glu Thr Arg Asn Val Ala Thr Asp Pro Glu Leu Ser Ile Gln
195 200 205

Tyr Leu Arg Val Gly Pro Ser Ser Met Val Pro Pro Arg Tyr Lys Gly
210 215 220

FC-4-1.ST25.txt

Pro Val Ser Ser Leu Cys Gln Gln Ala Asn Lys Gln Leu Tyr Gln Leu
225 230 235 240

Val Gln Tyr Ala Arg Cys Met Pro His Phe Ser Ala Leu Gln Leu Glu
245 250 255

Asp Gln Val Thr Leu Leu Arg Ala Ala Trp Asn Glu Leu Leu Ile Ala
260 265 270

Ser Ile Ala Trp Arg Ser Ile Glu Tyr Leu Glu Ser Asp Ala Glu Thr
275 280 285

Ser Thr Ser Ser Met Ser Ser Asp Thr Ser Thr Arg Arg Arg Ala Pro
290 295 300

Pro Gly Pro Pro Glu Leu Met Cys Phe Phe Pro Gly Met Thr Leu His
305 310 315 320

Arg Asn Ser Ala Ile Gln Ala Gly Val Gly Pro Ile Phe Asp Arg Val
325 330 335

Leu Ser Glu Leu Ser Val Lys Met Arg Arg Met Asp Leu Asp Arg Ala
340 345 350

Glu Leu Gly Cys Leu Lys Ala Ile Ile Leu Phe Asn Pro Asp Ile Arg
355 360 365

Gly Leu Lys Cys Arg Gln Glu Val Asp Ala Leu Arg Glu Lys Val Tyr
370 375 380

Ala Cys Leu Asp Glu His Cys Arg Thr Gln His Pro Ala Glu Glu Gly
385 390 395 400

Arg Phe Ala Ala Leu Leu Leu Arg Leu Pro Ala Leu Arg Ser Ile Ser
405 410 415

Leu Lys Cys Leu Asp His Leu Phe Phe Arg Leu Ile Gly Asp Thr
420 425 430

Pro Leu Glu Ser Phe Leu Val Asp Leu Leu Glu Ala Gly Pro Ile Gly
435 440 445

FC-4-1.ST25.txt

<211> 1749
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 <213> Ctenocephalides felis

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 gtaaaatccac aagaaaactc tcaagcggcg tatcgccat caatctgaag aaaaacaggt 180
 gatcgagaca tttcaaagag attgaccta gagctggcag gcgaagcagc agggctgcga 240
 aacgaccctc ttccgctgga tgctgcgtcc tgcaatgctc gtccaggcac gcgtaaacct 300
 tttctcgtaa agcatccact tcctgtctac atttcagtcc tcgaatatac ggattaaaca 360
 gtattatagc cttcaaacag cctaattctg ctctgtccaa atccattctt ctcattttga 420
 cacttaattc tgacagtacc cgatcgaaaa taggtccgac gccagcctgg attgcactat 480
 tccgatgtaa cgtcatacca ggaaagaaac acattaattc aggccgtcct ggtggagcgc 540
 gtctccttgc tgaagtatca ctagacatac tggacgtact tggttctgca tcggattcta 600
 gatactcaat acttctccag gctatagatg ctataagtaa ttcattccag gctgctctga 660
 gtaacgttac ttgatcctct aattgtaaag cactaaaatg cggcatgcac cttgcgtatt 720
 gtactaactg atataactgt ttatggctt gctgacacag actggataca gggcccttgc 780
 atcttaggagg caccatggat gaaggccta ctcgcaataa ttgtatcgac aattccgggt 840
 ccgtcgcaac atttcgagtt tcactcctt gttctgcctc taaaattctt tctaccgtta 900
 aatcacgaac agaacttgc ggggtgcctt cttcattatt ctttgcctc cgttgcgttt 960
 cttcctgcac ggcttctcg ttcattccac aggccgagaca tttctgatata cgacagaact 1020
 gacatcgatt tctctgcctt ttgtcgatca aacaatttct atcctctcga caggcatacg 1080
 tcagatctt tcgtaccgtc cggttgcggg atcccttaca accttcgcaaa ctgtaaacac 1140
 cataatgctt cccggaaagcc ctatctccgc atatggagca cagatgttt gacccgctca 1200
 aaggatgatt tggagggtat ggtgatttcg tttggcgcc cgtggccgtg tttcctgata 1260
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 gcggtcccat cgagctcatt gacagccctt ggtcgaggc caagcctctg tctgcacttt 1440
 ccattattgt tccactaaac tagcagttac acttttcac ttatggatc tttttgaac 1500
 tgaactttaa taaagcaaca ttatgtaaa tttgtataaa catggccgca tactgtcact 1560
 ctgttaaggc gatgaactat caactattc cttcaacaaa ctcataatt tcgttcatta 1620

FC-4-1.ST25.txt

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ggtccacta						1749										
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<222> (1)..(1344)																
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1							5			10					15	
agc	tcg	atg	gga	ccg	ctc	tca	ccg	ccg	gat	atg	aaa	ccg	gat	cct	gcg	96
Ser	Ser	Met	Gly	Pro	Leu	Ser	Pro	Pro	Asp	Met	Lys	Pro	Asp	Pro	Ala	
20							25								30	
cta	ctg	aac	ggc	ggc	ttt	tcg	ccc	ggc	agt	ggc	ggc	gca	gtt	gtc	ggc	144
Leu	Leu	Asn	Gly	Gly	Phe	Ser	Pro	Gly	Ser	Gly	Gly	Ala	Val	Val	Gly	
35							40					45				
agt	ccc	gct	agt	ccg	cct	ttt	ggt	caa	aat	cac	aca	ata	gta	tca	gga	192
Ser	Pro	Ala	Ser	Pro	Pro	Phe	Gly	Gln	Asn	His	Thr	Ile	Val	Ser	Gly	
50							55					60				
aac	acg	gcc	acg	ggc	gcc	caa	acg	aaa	tca	cca	tac	cct	cca	aat	cat	240
Asn	Thr	Ala	Thr	Gly	Ala	Gln	Thr	Lys	Ser	Pro	Tyr	Pro	Pro	Asn	His	
65							70			75				80		
cct	ttg	agc	ggg	tca	aaa	cat	ctg	tgc	tcc	ata	tgc	gga	gat	agg	gct	288
Pro	Leu	Ser	Gly	Ser	Lys	His	Leu	Cys	Ser	Ile	Cys	Gly	Asp	Arg	Ala	
85							90					95				
tcc	ggg	aag	cat	tat	ggt	gtt	tac	agt	tgc	gaa	ggt	tgt	aag	gga	ttt	336
Ser	Gly	Lys	His	Tyr	Gly	Val	Tyr	Ser	Cys	Glu	Gly	Cys	Lys	Gly	Phe	
100							105					110				
ttc	aaa	cg	gt	ca	aaa	ga	t	cg	ac	tat	gc	tgt	cg	ga	ga	384
Phe	Lys	Arg	Thr	Val	Arg	Lys	Asp	Leu	Thr	Tyr	Ala	Cys	Arg	Glu	Asp	
115							120					125				
aga	aat	tgt	ttg	atc	gac	aaa	agg	cag	aga	aat	cga	tgt	cag	ttc	tgt	432
Arg	Asn	Cys	Leu	Ile	Asp	Lys	Arg	Gln	Arg	Asn	Arg	Cys	Gln	Phe	Cys	
130							135					140				
cga	tat	cag	aaa	tgt	ctc	gcc	tgt	gga	atg	aaa	cga	gaa	gcc	gtg	cag	480
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145							150					155			160	

FC-4-1.ST25.txt

gaa gaa cga caa cga gga gca aag aat aat gaa gaa agc aac ccg aca Glu Glu Arg Gln Arg Gly Ala Lys Asn Asn Glu Glu Ser Asn Pro Thr 165 170 175	528
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agg agt gaa act cga aat gtt gcg acg gac ccg gaa ttg tcg ata caa Arg Ser Glu Thr Arg Asn Val Ala Thr Asp Pro Glu Leu Ser Ile Gln 195 200 205	624
tat ttg cga gta gga cct tca tcc atg gtg cct cct aga tac aag ggc Tyr Leu Arg Val Gly Pro Ser Ser Met Val Pro Pro Arg Tyr Lys Gly 210 215 220	672
cct gta tcc agt ctg tgt cag caa gca aat aaa cag tta tat cag tta Pro Val Ser Ser Leu Cys Gln Gln Ala Asn Lys Gln Leu Tyr Gln Leu 225 230 235 240	720
gta caa tac gca agg tgc atg ccg cat ttt agt gct tta caa tta gag Val Gln Tyr Ala Arg Cys Met Pro His Phe Ser Ala Leu Gln Leu Glu 245 250 255	768
gat caa gta acg tta ctc aga gca gcc tgg aat gaa tta ctt ata gca Asp Gln Val Thr Leu Leu Arg Ala Ala Trp Asn Glu Leu Leu Ile Ala 260 265 270	816
tct ata gcc tgg aga agt att gag tat cta gaa tcc gat gca gaa aca Ser Ile Ala Trp Arg Ser Ile Glu Tyr Leu Glu Ser Asp Ala Glu Thr 275 280 285	864
agt acg tcc agt atg tct agt gat act tca aca agg aga cgc gct cca Ser Thr Ser Ser Met Ser Asp Thr Ser Thr Arg Arg Arg Ala Pro 290 295 300	912
cca gga ccg cct gaa tta atg tgt ttc ttt cct ggt atg acg tta cat Pro Gly Pro Pro Glu Leu Met Cys Phe Pro Gly Met Thr Leu His 305 310 315 320	960
cgg aat agt gca atc cag gct ggc gtc gga cct att ttc gat cgg gta Arg Asn Ser Ala Ile Gln Ala Gly Val Gly Pro Ile Phe Asp Arg Val 325 330 335	1008
ctg tca gaa tta agt gtc aaa atg aga aga atg gat ttg gac aga gca Leu Ser Glu Leu Ser Val Lys Met Arg Arg Met Asp Leu Asp Arg Ala 340 345 350	1056
gaa tta ggc tgt ttg aag gct ata ata ctg ttt aat cct gat att cga Glu Leu Gly Cys Leu Lys Ala Ile Ile Leu Phe Asn Pro Asp Ile Arg 355 360 365	1104
gga ctg aaa tgt aga cag gaa gtg gat gct tta cga gaa aag gtt tac Gly Leu Lys Cys Arg Gln Glu Val Asp Ala Leu Arg Glu Lys Val Tyr 370 375 380	1152
gcg tgc ctg gac gag cat tgc agg acg cag cat cca gcg gaa gag ggt Ala Cys Leu Asp Glu His Cys Arg Thr Gln His Pro Ala Glu Glu Gly 385 390 395 400	1200

FC-4-1.ST25.txt

cgt ttc gca gcc ctg ctg ctt cgc ctg cca gct ctg agg tca atc tct	1248
Arg Phe Ala Ala Leu Leu Leu Arg Leu Pro Ala Leu Arg Ser Ile Ser	
405 410 415	
ttg aaa tgt ctc gat cac ctg ttt ttc ttc aga ttg att ggc gat acg	1296
Leu Lys Cys Leu Asp His Leu Phe Phe Arg Leu Ile Gly Asp Thr	
420 425 430	
ccg ctt gag agt ttt ctt gtg gat tta ctc gag gcc gga ccg atc ggt	1344
Pro Leu Glu Ser Phe Leu Val Asp Leu Leu Glu Ala Gly Pro Ile Gly	
435 440 445	
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35 40 45	
Ser Pro Ala Ser Pro Pro Phe Gly Gln Asn His Thr Ile Val Ser Gly	
50 55 60	
Asn Thr Ala Thr Gly Ala Gln Thr Lys Ser Pro Tyr Pro Pro Asn His	
65 70 75 80	
Pro Leu Ser Gly Ser Lys His Leu Cys Ser Ile Cys Gly Asp Arg Ala	
85 90 95	
Ser Gly Lys His Tyr Gly Val Tyr Ser Cys Glu Gly Cys Lys Gly Phe	
100 105 110	
Phe Lys Arg Thr Val Arg Lys Asp Leu Thr Tyr Ala Cys Arg Glu Asp	
115 120 125	
Arg Asn Cys Leu Ile Asp Lys Arg Gln Arg Asn Arg Cys Gln Phe Cys	
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Arg Tyr Gln Lys Cys Leu Ala Cys Gly Met Lys Arg Glu Ala Val Gln	
145 150 155 160	

FC-4-1.ST25.txt

Glu Glu Arg Gln Arg Gly Ala Lys Asn Asn Glu Glu Ser Asn Pro Thr
165 170 175

Ser Ser Val Arg Asp Leu Thr Val Glu Arg Ile Leu Glu Ala Glu Gln
180 185 190

Arg Ser Glu Thr Arg Asn Val Ala Thr Asp Pro Glu Leu Ser Ile Gln
195 200 205

Tyr Leu Arg Val Gly Pro Ser Ser Met Val Pro Pro Arg Tyr Lys Gly
210 215 220

Pro Val Ser Ser Leu Cys Gln Gln Ala Asn Lys Gln Leu Tyr Gln Leu
225 230 235 240

Val Gln Tyr Ala Arg Cys Met Pro His Phe Ser Ala Leu Gln Leu Glu
245 250 255

Asp Gln Val Thr Leu Leu Arg Ala Ala Trp Asn Glu Leu Leu Ile Ala
260 265 270

Ser Ile Ala Trp Arg Ser Ile Glu Tyr Leu Glu Ser Asp Ala Glu Thr
275 280 285

Ser Thr Ser Ser Met Ser Ser Asp Thr Ser Thr Arg Arg Arg Ala Pro
290 295 300

Pro Gly Pro Pro Glu Leu Met Cys Phe Phe Pro Gly Met Thr Leu His
305 310 315 320

Arg Asn Ser Ala Ile Gln Ala Gly Val Gly Pro Ile Phe Asp Arg Val
325 330 335

Leu Ser Glu Leu Ser Val Lys Met Arg Arg Met Asp Leu Asp Arg Ala
340 345 350

Glu Leu Gly Cys Leu Lys Ala Ile Ile Leu Phe Asn Pro Asp Ile Arg
355 360 365

Gly Leu Lys Cys Arg Gln Glu Val Asp Ala Leu Arg Glu Lys Val Tyr
370 375 380

Ala Cys Leu Asp Glu His Cys Arg Thr Gln His Pro Ala Glu Glu Gly

FC-4-1.ST25.txt

385

390

395

400

Arg Phe Ala Ala Leu Leu Leu Arg Leu Pro Ala Leu Arg Ser Ile Ser
 405 410 415

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<210> 31
 <211> 1344
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 actggataca gggcccttgt atctaggagg caccatggat gaaggtccta ctcgcaaata 720
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FC-4-1.ST25.txt

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caagcctctg tctgcacttt ccat 1344

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<211> 1975
<212> DNA
<213> *Ctenocephalides felis*

<220>
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<222> (454)..(1878)
<223>

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aataaactgt taatttcaat tttttggtaa ctccaaatgt tacctcaaaa actttaaagta 300
agggtcaaataaaaaaaag tgtcattaag aaattcaaca tgacttagtac acatatactgt 360
gagtgagttt atattagaaaa tgaaggagac gcataaaatgg taacttaatt aagcattaca 420
atcaactggg aataaataaaa tatatcttct aaa atg atg aaa gag aag cct 474
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                           1           5

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tgg gga cga gga tta tct ggc ctt aca ggc ttg gcc ctc gac caa ggg 570
 Trp Gly Arg Gly Leu Ser Gly Leu Thr Gly Leu Ala Leu Asp Gln Gly
 25 30 35

ctg tca atg agc tcg atg gga ccg ctc tca ctg ccg gat atg aaa ccg 618
 Leu Ser Met Ser Ser Met Gly Pro Leu Ser Leu Pro Asp Met Lys Pro
 40 45 50 55

gat cct gcg cta ctg aac ggc ggc ttt tcg ccc ggc agt ggc ggc gca 666
 Asp Pro Ala Leu Leu Asn Gly Gly Phe Ser Pro Gly Ser Gly Gly Ala
 60 65 70

gtt gtc ggc agt ccc gct agt ccg cct ttt ggt caa aat cac aca ata 714
 Val Val Gly Ser Pro Ala Ser Pro Pro Phe Gly Gln Asn His Thr Ile
 75 80 85

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gta tca gga aac acg gcc acg ggc gcc caa acg aaa tca cca tac cct	762
Val Ser Gly Asn Thr Ala Thr Gly Ala Gln Thr Lys Ser Pro Tyr Pro	
90 95 100	
cca aat cat cct ttg agc ggg tca aaa cat ctg tgc tcc ata tgc gga	810
Pro Asn His Pro Leu Ser Gly Ser Lys His Leu Cys Ser Ile Cys Gly	
105 110 115	
gat agg gct tcc ggg aag cat tat ggt gtt tac agt tgc gaa ggt tgt	858
Asp Arg Ala Ser Gly Lys His Tyr Gly Val Tyr Ser Cys Glu Gly Cys	
120 125 130 135	
aag gga ttt ttc aaa cgg acg gta cga aaa gat ctg acg tat gcc tgt	906
Lys Gly Phe Phe Lys Arg Thr Val Arg Lys Asp Leu Thr Tyr Ala Cys	
140 145 150	
cga gag gat aga aat tgt ttg atc gac aaa agg cag aga aat cga tgt	954
Arg Glu Asp Arg Asn Cys Leu Ile Asp Lys Arg Gln Arg Asn Arg Cys	
155 160 165	
cag ttc tgt cga tat cag aaa tgt ctc gcc tgt gga atg aaa cga gaa	1002
Gln Phe Cys Arg Tyr Gln Lys Cys Leu Ala Cys Gly Met Lys Arg Glu	
170 175 180	
gcc gtg cag gaa gaa cga caa cga gga gca aag aat aat gaa gaa agc	1050
Ala Val Gln Glu Glu Arg Gln Arg Gly Ala Lys Asn Asn Glu Glu Ser	
185 190 195	
aac ccg aca agt tct gtt cgt gat tta acg gta gaa aga att tta gaa	1098
Asn Pro Thr Ser Ser Val Arg Asp Leu Thr Val Glu Arg Ile Leu Glu	
200 205 210 215	
gca gaa caa agg agt gaa act cga aat gtt gcg acg gac ccg gaa ttg	1146
Ala Glu Gln Arg Ser Glu Thr Arg Asn Val Ala Thr Asp Pro Glu Leu	
220 225 230	
tcg ata caa tat ttg cga gta gga cct tca tcc atg gtg cct cct aga	1194
Ser Ile Gln Tyr Leu Arg Val Gly Pro Ser Ser Met Val Pro Pro Arg	
235 240 245	
tac aag ggc cct gta tcc agt ctg tgt cag caa gca aat aaa cag tta	1242
Tyr Lys Pro Val Ser Ser Leu Cys Gln Gln Ala Asn Lys Gln Leu	
250 255 260	
tat cag tta gta caa tac gca agg tgc atg ccg cat ttt agt gct tta	1290
Tyr Gln Leu Val Gln Tyr Ala Arg Cys Met Pro His Phe Ser Ala Leu	
265 270 275	
caa tta gag gat caa gta acg tta ctc aga gca gcc tgg aat gaa tta	1338
Gln Leu Glu Asp Gln Val Thr Leu Leu Arg Ala Ala Trp Asn Glu Leu	
280 285 290 295	
ctt ata gca tct ata gcc tgg aga agt att gag tat cta gaa tcc gat	1386
Leu Ile Ala Ser Ile Ala Trp Arg Ser Ile Glu Tyr Leu Glu Ser Asp	
300 305 310	
gca gaa aca agt acg tcc agt atg tct agt gat act tca aca agg aga	1434
Ala Glu Thr Ser Thr Ser Met Ser Ser Asp Thr Ser Thr Arg Arg	
315 320 325	

FC-4-1.ST25.txt

cgc gct cca cca gga ccg cct gaa tta atg tgt ttc ttt cct ggt atg	1482
Arg Ala Pro Pro Gly Pro Pro Glu Leu Met Cys Phe Phe Pro Gly Met	
330 335 340	
acg tta cat cgg aat agt gca atc cag gct ggc gtc gga cct att ttc	1530
Thr Leu His Arg Asn Ser Ala Ile Gln Ala Gly Val Gly Pro Ile Phe	
345 350 355	
gat cgg gta ctg tca gaa tta agt gtc aaa atg aga aga atg gat ttg	1578
Asp Arg Val Leu Ser Glu Leu Ser Val Lys Met Arg Arg Met Asp Leu	
360 365 370 375	
gac aga gca gaa tta ggc tgt ttg aag gct ata ata ctg ttt aat cct	1626
Asp Arg Ala Glu Leu Gly Cys Leu Lys Ala Ile Ile Leu Phe Asn Pro	
380 385 390	
gat att cga gga ctg aaa tgt aga cag gaa gtg gat gct tta cga gaa	1674
Asp Ile Arg Gly Leu Lys Cys Arg Gln Glu Val Asp Ala Leu Arg Glu	
395 400 405	
aag gtt tac gcg tgc ctg gac gag cat tgc agg acg cag cat cca gcg	1722
Lys Val Tyr Ala Cys Leu Asp Glu His Cys Arg Thr Gln His Pro Ala	
410 415 420	
gaa gag ggt cgt ttc gca gcc ctg ctg ctt cgc ctg cca gct ctg agg	1770
Glu Glu Gly Arg Phe Ala Ala Leu Leu Leu Arg Leu Pro Ala Leu Arg	
425 430 435	
tca atc tct ttg aaa tgt ctc gat cac ctg ttt ttc ttc aga ttg att	1818
Ser Ile Ser Leu Lys Cys Leu Asp His Leu Phe Phe Arg Leu Ile	
440 445 450 455	
ggc gat acg ccg ctt gag agt ttt ctt gtg gat tta ctc gag gcc gga	1866
Gly Asp Thr Pro Leu Glu Ser Phe Leu Val Asp Leu Leu Glu Ala Gly	
460 465 470	
ccg atc ggt tga gccgattcat ggataaaaga taagtttat gtattaagat	1918
Pro Ile Gly	
gagaataagt aaatattctg caaagttatt tttctgcac gaatattct acaagca	1975
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<213> Ctenocephalides felis	
<400> 33	
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Gly Ala Ala Gln Asn Gln Ile Trp Gly Arg Gly Leu Ser Gly Leu Thr	
20 25 30	

FC-4-1.ST25.txt

Gly Leu Ala Leu Asp Gln Gly Leu Ser Met Ser Ser Met Gly Pro Leu
35 40 45

Ser Leu Pro Asp Met Lys Pro Asp Pro Ala Leu Leu Asn Gly Gly Phe
50 55 60

Ser Pro Gly Ser Gly Gly Ala Val Val Gly Ser Pro Ala Ser Pro Pro
65 70 75 80

Phe Gly Gln Asn His Thr Ile Val Ser Gly Asn Thr Ala Thr Gly Ala
85 90 95

Gln Thr Lys Ser Pro Tyr Pro Pro Asn His Pro Leu Ser Gly Ser Lys
100 105 110

His Leu Cys Ser Ile Cys Gly Asp Arg Ala Ser Gly Lys His Tyr Gly
115 120 125

Val Tyr Ser Cys Glu Gly Cys Lys Gly Phe Phe Lys Arg Thr Val Arg
130 135 140

Lys Asp Leu Thr Tyr Ala Cys Arg Glu Asp Arg Asn Cys Leu Ile Asp
145 150 155 160

Lys Arg Gln Arg Asn Arg Cys Gln Phe Cys Arg Tyr Gln Lys Cys Leu
165 170 175

Ala Cys Gly Met Lys Arg Glu Ala Val Gln Glu Glu Arg Gln Arg Gly
180 185 190

Ala Lys Asn Asn Glu Glu Ser Asn Pro Thr Ser Ser Val Arg Asp Leu
195 200 205

Thr Val Glu Arg Ile Leu Glu Ala Glu Gln Arg Ser Glu Thr Arg Asn
210 215 220

Val Ala Thr Asp Pro Glu Leu Ser Ile Gln Tyr Leu Arg Val Gly Pro
225 230 235 240

Ser Ser Met Val Pro Pro Arg Tyr Lys Gly Pro Val Ser Ser Leu Cys
245 250 255

Gln Gln Ala Asn Lys Gln Leu Tyr Gln Leu Val Gln Tyr Ala Arg Cys
260 265 270

FC-4-1.ST25.txt

Met Pro His Phe Ser Ala Leu Gln Leu Glu Asp Gln Val Thr Leu Leu
275 280 285

Arg Ala Ala Trp Asn Glu Leu Leu Ile Ala Ser Ile Ala Trp Arg Ser
290 295 300

Ile Glu Tyr Leu Glu Ser Asp Ala Glu Thr Ser Thr Ser Ser Met Ser
305 310 315 320

Ser Asp Thr Ser Thr Arg Arg Arg Ala Pro Pro Gly Pro Pro Glu Leu
325 330 335

Met Cys Phe Phe Pro Gly Met Thr Leu His Arg Asn Ser Ala Ile Gln
340 345 350

Ala Gly Val Gly Pro Ile Phe Asp Arg Val Leu Ser Glu Leu Ser Val
355 360 365

Lys Met Arg Arg Met Asp Leu Asp Arg Ala Glu Leu Gly Cys Leu Lys
370 375 380

Ala Ile Ile Leu Phe Asn Pro Asp Ile Arg Gly Leu Lys Cys Arg Gln
385 390 395 400

Glu Val Asp Ala Leu Arg Glu Lys Val Tyr Ala Cys Leu Asp Glu His
405 410 415

Cys Arg Thr Gln His Pro Ala Glu Glu Gly Arg Phe Ala Ala Leu Leu
420 425 430

Leu Arg Leu Pro Ala Leu Arg Ser Ile Ser Leu Lys Cys Leu Asp His
435 440 445

Leu Phe Phe Phe Arg Leu Ile Gly Asp Thr Pro Leu Glu Ser Phe Leu
450 455 460

Val Asp Leu Leu Glu Ala Gly Pro Ile Gly
465 470

<210> 34
<211> 1975
<212> DNA
<213> Ctenocephalides felis

<400> 34

FC-4-1.ST25.txt

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gtaaatccac aagaaaactc	tcaagcggcg tatcg	ccaaat caatctgaag aaaaacaggt	180
gatcgagaca tttcaaagag	attgac	ctca gagctggcag gcgaagcagc agggctgcga	240
aacgaccctc ttccgctg	ga tgctgcgtcc tgcaatg	gtcgtccac gcgtaaac	300
tttctcgtaa agcatccact	tcctgtctac atttc	aggtccatca ggattaaaca	360
gtattatagc cttcaaacag	cctaattctg ctctgtccaa	atccattctt ctcatttga	420
cacttaattc tgacagtacc	cgatcgaaaa taggtcc	gac gccagcctgg attgcactat	480
tccgatgtaa cgtcatacca	gaaaaagaaac acattaattc	aggcggtcct ggtggagcgc	540
gtctccttgt tgaagtatca	ctagacatac tggacgtact	tg tttctgca tcggattcta	600
gatactcaat acttctccag	gctatagatg ctataagtaa	ttcattccag gctgctctga	660
gtaacgttac ttgatcctct	aattgtaaag cactaaaatg	cggcatgcac cttgcgtatt	720
gtactaactg atataactgt	ttatttgctt gctgacacag	actggataca gggcccttgt	780
atctaggagg caccatggat	gaaggccta ctcgcaaaata	ttgtatcgac aattccgggt	840
ccgtcgcaac atttcgagtt	tcactcctt gttctgcttc	taaaattctt tctaccgtta	900
aatcacgaac agaacttgc	gggttgctt cttcattatt	cttgctcct cgttgcgtt	960
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tcagatctt tcgtaccgtc	cgtttggaaa atcccttaca	accttcgcaa ctgtaaacac	1140
cataatgctt cccggaagcc	ctatctccgc atatggagca	cagatgttt gacccgctca	1200
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ctattgtgtg atttgacca	aaaggcggac tagcggact	gccgacaact ggcgcgcac	1320
tgccggcgaa aagccgccc	ttcagtagcg caggatccgg	tttcatatcc ggcagtgaga	1380
gcggtcccatt cgagctcatt	gacagccctt ggtcgagggc	caagcctgta aggccagata	1440
atcctcg	tc ccatattga ttctgagcgg	ctcattgaat caaagccgtc acagacatca	1500
taggcttctc tttttc	atctcatttctt atatatttat	ttattccag ttgattgtaa	1560
tgcttaatta agttaaccatt	tatgcgtctc cttcatttctt	aatataaaact cactcactga	1620
tatgtgtact agtcatgttg	aatttcttaa tgacactttt	tttatatttgc acccttactt	1680
taagtttttgc aggttaacatt	tggagttacc aaaaaattga	aattaacagt ttattcctat	1740
actcaattat aagcaacata	taaactaata cgttcagttat	gtcatctccc acatggggca	1800

FC-4-1.ST25.txt

ctgtcattca aaatctaata aacaattcct ttttatgaaa gcacaactct tatcacacag	1860
cacaaaaatt atctcgagac taaaactaaa cacaaaatat taaaatatc gttcatcttc	1920
gaacacgtca aaacaaaccg agtcgcgcgc ataccatcac ttcaatcact tgact	1975
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Met Met Lys Lys Glu Lys Pro Met Met Ser Val Thr Ala Leu Ile Gln	
1 5 10 15	
gga gcc gct cag aat caa ata tgg gga cga gga tta tct ggc ctt aca	96
Gly Ala Ala Gln Asn Gln Ile Trp Gly Arg Gly Leu Ser Gly Leu Thr	
20 25 30	
ggc ttg gcc ctc gac caa ggg ctg tca atg agc tcg atg gga ccg ctc	144
Gly Leu Ala Leu Asp Gln Gly Leu Ser Met Ser Ser Met Gly Pro Leu	
35 40 45	
tca ctg ccg gat atg aaa ccg gat cct gcg cta ctg aac ggc ggc ttt	192
Ser Leu Pro Asp Met Lys Pro Asp Pro Ala Leu Leu Asn Gly Gly Phe	
50 55 60	
tcg ccc ggc agt ggc ggc gca gtt gtc ggc agt ccc gct agt ccg cct	240
Ser Pro Gly Ser Gly Gly Ala Val Val Gly Ser Pro Ala Ser Pro Pro	
65 70 75 80	
ttt ggt caa aat cac aca ata gta tca gga aac acg gcc acg ggc gcc	288
Phe Gly Gln Asn His Thr Ile Val Ser Gly Asn Thr Ala Thr Gly Ala	
85 90 95	
caa acg aaa tca cca tac cct cca aat cat cct ttg agc ggg tca aaa	336
Gln Thr Lys Ser Pro Tyr Pro Pro Asn His Pro Leu Ser Gly Ser Lys	
100 105 110	
cat ctg tgc tcc ata tgc gga gat agg gct tcc ggg aag cat tat ggt	384
His Leu Cys Ser Ile Cys Gly Asp Arg Ala Ser Gly Lys His Tyr Gly	
115 120 125	
gtt tac agt tgc gaa ggt tgt aag gga ttt ttc aaa cgg acg gta cga	432
Val Tyr Ser Cys Glu Gly Cys Lys Gly Phe Phe Lys Arg Thr Val Arg	
130 135 140	
aaa gat ctg acg tat gcc tgt cga gag gat aga aat tgt ttg atc gac	480
Lys Asp Leu Thr Tyr Ala Cys Arg Glu Asp Arg Asn Cys Leu Ile Asp	
145 150 155 160	

FC-4-1.ST25.txt

aaa agg cag aga aat cga tgt cag ttc tgt cga tat cag aaa tgt ctc Lys Arg Gln Arg Asn Arg Cys Gln Phe Cys Arg Tyr Gln Lys Cys Leu 165 170 175	528
gcc tgt gga atg aaa cga gaa gcc gtg cag gaa gaa cga caa cga gga Ala Cys Gly Met Lys Arg Glu Ala Val Gln Glu Glu Arg Gln Arg Gly 180 185 190	576
gca aag aat aat gaa gaa agc aac ccg aca agt tct gtt cgt gat tta Ala Lys Asn Asn Glu Glu Ser Asn Pro Thr Ser Ser Val Arg Asp Leu 195 200 205	624
acg gta gaa aga att tta gaa gca gaa caa agg agt gaa act cga aat Thr Val Glu Arg Ile Leu Glu Ala Glu Gln Arg Ser Glu Thr Arg Asn 210 215 220	672
gtt gcg acg gac ccg gaa ttg tcg ata caa tat ttg cga gta gga cct Val Ala Thr Asp Pro Glu Leu Ser Ile Gln Tyr Leu Arg Val Gly Pro 225 230 235 240	720
tca tcc atg gtg cct cct aga tac aag ggc cct gta tcc agt ctg tgt Ser Ser Met Val Pro Pro Arg Tyr Lys Gly Pro Val Ser Ser Leu Cys 245 250 255	768
cag caa gca aat aaa cag tta tat cag tta gta caa tac gca agg tgc Gln Gln Ala Asn Lys Gln Leu Tyr Gln Leu Val Gln Tyr Ala Arg Cys 260 265 270	816
atg ccg cat ttt agt gct tta caa tta gag gat caa gta acg tta ctc Met Pro His Phe Ser Ala Leu Gln Leu Glu Asp Gln Val Thr Leu Leu 275 280 285	864
aga gca gcc tgg aat gaa tta ctt ata gca tct ata gcc tgg aga agt Arg Ala Ala Trp Asn Glu Leu Leu Ile Ala Ser Ile Ala Trp Arg Ser 290 295 300	912
att gag tat cta gaa tcc gat gca gaa aca agt acg tcc agt atg tct Ile Glu Tyr Leu Glu Ser Asp Ala Glu Thr Ser Thr Ser Met Ser 305 310 315 320	960
agt gat act tca aca agg aga cgc gct cca cca gga ccg cct gaa tta Ser Asp Thr Ser Thr Arg Arg Ala Pro Pro Gly Pro Pro Glu Leu 325 330 335	1008
atg tgt ttc ttt cct ggt atg acg tta cat cgg aat agt gca atc cag Met Cys Phe Pro Gly Met Thr Leu His Arg Asn Ser Ala Ile Gln 340 345 350	1056
gct ggc gtc gga cct att ttc gat cgg gta ctg tca gaa tta agt gtc Ala Gly Val Gly Pro Ile Phe Asp Arg Val Leu Ser Glu Leu Ser Val 355 360 365	1104
aaa atg aga aga atg gat ttg gac aga gca gaa tta ggc tgt ttg aag Lys Met Arg Arg Met Asp Leu Asp Arg Ala Glu Leu Gly Cys Leu Lys 370 375 380	1152
gct ata ata ctg ttt aat cct gat att cga gga ctg aaa tgt aga cag Ala Ile Ile Leu Phe Asn Pro Asp Ile Arg Gly Leu Lys Cys Arg Gln	1200

FC-4-1.ST25.txt

385	390	395	400	
gaa gtg gat gct tta cga gaa aag gtt tac gcg tgc ctg gac gag cat				1248
Glu Val Asp Ala Leu Arg Glu Lys Val Tyr Ala Cys Leu Asp Glu His				
405	410		415	
tgc agg acg cag cat cca gcg gaa gag ggt cgt ttc gca gcc ctg ctg				1296
Cys Arg Thr Gln His Pro Ala Glu Gly Arg Phe Ala Ala Leu Leu				
420	425		430	
ctt cgc ctg cca gct ctg agg tca atc tct ttg aaa tgt ctc gat cac				1344
Leu Arg Leu Pro Ala Leu Arg Ser Ile Ser Leu Lys Cys Leu Asp His				
435	440		445	
ctg ttt ttc ttc aga ttg att ggc gat acg ccg ctt gag agt ttt ctt				1392
Leu Phe Phe Arg Leu Ile Gly Asp Thr Pro Leu Glu Ser Phe Leu				
450	455		460	
gtg gat tta ctc gag gcc gga ccg atc ggt				1422
Val Asp Leu Leu Glu Ala Gly Pro Ile Gly				
465	470			
<210> 36				
<211> 474				
<212> PRT				
<213> Ctenocephalides felis				
<400> 36				

Met Met Lys Lys Glu Lys Pro Met Met Ser Val Thr Ala Leu Ile Gln				
1	5	10	15	

Gly Ala Ala Gln Asn Gln Ile Trp Gly Arg Gly Leu Ser Gly Leu Thr				
20	25	30		

Gly Leu Ala Leu Asp Gln Gly Leu Ser Met Ser Ser Met Gly Pro Leu				
35	40	45		

Ser Leu Pro Asp Met Lys Pro Asp Pro Ala Leu Leu Asn Gly Gly Phe				
50	55	60		

Ser Pro Gly Ser Gly Gly Ala Val Val Gly Ser Pro Ala Ser Pro Pro				
65	70	75	80	

Phe Gly Gln Asn His Thr Ile Val Ser Gly Asn Thr Ala Thr Gly Ala				
85	90	95		

Gln Thr Lys Ser Pro Tyr Pro Pro Asn His Pro Leu Ser Gly Ser Lys				
100	105	110		

His Leu Cys Ser Ile Cys Gly Asp Arg Ala Ser Gly Lys His Tyr Gly

FC-4-1.ST25.txt

115

120

125

Val Tyr Ser Cys Glu Gly Cys Lys Gly Phe Phe Lys Arg Thr Val Arg
130 135 140

Lys Asp Leu Thr Tyr Ala Cys Arg Glu Asp Arg Asn Cys Leu Ile Asp
145 150 155 160

Lys Arg Gln Arg Asn Arg Cys Gln Phe Cys Arg Tyr Gln Lys Cys Leu
165 170 175

Ala Cys Gly Met Lys Arg Glu Ala Val Gln Glu Glu Arg Gln Arg Gly
180 185 190

Ala Lys Asn Asn Glu Glu Ser Asn Pro Thr Ser Ser Val Arg Asp Leu
195 200 205

Thr Val Glu Arg Ile Leu Glu Ala Glu Gln Arg Ser Glu Thr Arg Asn
210 215 220

Val Ala Thr Asp Pro Glu Leu Ser Ile Gln Tyr Leu Arg Val Gly Pro
225 230 235 240

Ser Ser Met Val Pro Pro Arg Tyr Lys Gly Pro Val Ser Ser Leu Cys
245 250 255

Gln Gln Ala Asn Lys Gln Leu Tyr Gln Leu Val Gln Tyr Ala Arg Cys
260 265 270

Met Pro His Phe Ser Ala Leu Gln Leu Glu Asp Gln Val Thr Leu Leu
275 280 285

Arg Ala Ala Trp Asn Glu Leu Leu Ile Ala Ser Ile Ala Trp Arg Ser
290 295 300

Ile Glu Tyr Leu Glu Ser Asp Ala Glu Thr Ser Thr Ser Ser Met Ser
305 310 315 320

Ser Asp Thr Ser Thr Arg Arg Ala Pro Pro Gly Pro Pro Glu Leu
325 330 335

Met Cys Phe Phe Pro Gly Met Thr Leu His Arg Asn Ser Ala Ile Gln
340 345 350

FC-4-1.ST25.txt

Ala Gly Val Gly Pro Ile Phe Asp Arg Val Leu Ser Glu Leu Ser Val
 355 360 365

Lys Met Arg Arg Met Asp Leu Asp Arg Ala Glu Leu Gly Cys Leu Lys
 370 375 380

Ala Ile Ile Leu Phe Asn Pro Asp Ile Arg Gly Leu Lys Cys Arg Gln
 385 390 395 400

Glu Val Asp Ala Leu Arg Glu Lys Val Tyr Ala Cys Leu Asp Glu His
 405 410 415

Cys Arg Thr Gln His Pro Ala Glu Glu Gly Arg Phe Ala Ala Leu Leu
 420 425 430

Leu Arg Leu Pro Ala Leu Arg Ser Ile Ser Leu Lys Cys Leu Asp His
 435 440 445

Leu Phe Phe Arg Leu Ile Gly Asp Thr Pro Leu Glu Ser Phe Leu
 450 455 460

Val Asp Leu Leu Glu Ala Gly Pro Ile Gly
 465 470

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 <213> Ctenocephalides felis

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 gcgaagcagc agggctgcga aacgaccctc ttccgctgga tgctgcgtcc tgcaatgctc 180
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 atccattctt ctcattttga cacttaattc tgacagtacc cgatcgaaaa taggtccgac 360
 gccagcctgg attgcactat tccgatgtaa cgtcataccca ggaaagaaac acattaattc 420
 aggcggtcctt ggtggagcgc gtctccttgt tgaagtatca ctagacatac tggacgtact 480
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 ttcatccag gctgctctga gtaacgttac ttgatcctct aattgtaaag cactaaaatg 600
 cggcatgcac cttgcgtatt gtactaactg atataactgt ttatggctt gctgacacag 660

FC-4-1.ST25.txt

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cttgctcct	cgttgcgtt	cttcctgcac	ggcttctcg	ttcattccac	aggcgagaca	900
tttctgata	cgacagaact	gacatcgatt	tctctgcctt	ttgtcgatca	aacaatttct	960
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cagatgtttt	gacccgctca	aaggatgatt	tggagggat	ggtgatttcg	tttgggccc	1140
cgtggccgtg	tttcctgata	ctattgtgt	attttgacca	aaaggcggac	tagcgggact	1200
gccgacaact	gcgcgcac	tgccggcga	aaagccgcg	ttcagtagcg	caggatccgg	1260
tttcatatcc	ggcagtgaga	gcggtccat	cgagctcatt	gacagccctt	ggtcgagggc	1320
caagcctgta	aggccagata	atcctcgcc	ccatattga	ttctgagcgg	ctccttgaat	1380
caaagccgtc	acagacatca	taggcttctc	tttttcatc	at		1422

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<211>	612					
<212>	DNA					
<213>	Ctenocephalides felis					
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ggtttaccag	cttttaccaa	aataccacaa	gaagatcaa	taacattatt	aaaggcatgt	180
tcaagtgaag	taatgatgct	gcgaatggct	cgccggtagc	atgcagtgtc	ggattcaatc	240
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acaatagaag	atctattgca	tttttgcga	cagatgtata	ctatgactgt	agacaatgtg	360
gagtatgcac	taataacagc	aattgtgatt	tttcagatc	gacctggatt	ggaacaagca	420
gatcttgtgg	aacaaattca	aagtttattac	atcaaaacat	taaagtgcata	cattttgaat	480
cgacatagtg	gtgaccctaa	gtgtggaata	ttgtttgcc	aacttcttc	tattttact	540
gaattacgca	cgttaggaaa	tcaaaaactca	gaaatgtgtt	ttgcactgaa	attgaagaac	600
agaaaaacttc	ct					612

<210>	39
<211>	612

FC-4-1.ST25.txt

<212> DNA

<213> Ctenocephalides felis

<400> 39

aggaagtttt	ctgttcttca	atttcagtgc	aaaacacatt	tctgagttt	gatttcctaa	60		
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accactatgt	cgattcaaaa	tgt	tagcactt	taat	tttgc	atgtaataac	tttgaattt	180
ttccacaaga	tctgctt	gtt	ccaatccagg	tcgatctgaa	aaaatcaca	ttgctgtt	240	
tagtgcatac	tcc	acattgt	ctacagtcat	agtatacatc	tg	tcgacaaa	aatgcaatag	300
atcttctatt	gtatctgcca	taccagccat	ttt	ataggag	tcacgagtat	atgaacgatt	360	
attcgcgaat	aagattgaat	ccgacactgc	atcg	taccgc	cgagccattc	gcagcatcat	420	
tacttcactt	gaacatgcct	ttaataatgt	tattt	gatct	tctt	gtggta	ttttggtaaa	480
agctggtaaa	cccttgcaa	attccactat	aag	ctgcaca	gtaagtatgg	taattt	cagt	540
tatatgccga	aattcaagag	cttcatcttc	agct	ggtgta	ctt	atcatta	tccttcgtag	600
gtcttcctca	ga							612

<210> 40

<211> 776

<212> DNA

<213> Ctenocephalides felis

<400> 40

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cctgtatcca	gtctgtgtca	gca	aggca	aaat	aaacagttat	atc	agttatgt	acaatacgca	180	
aggtgcatgc	cgc	at	tttag	tgctt	aca	tttac	tttagaggatc	aagtaacg	240	
gcctggaaatg	aatt	actt	tttac	tata	gc	cttgg	gagaa	gtattgagta	tctagaatcc	300
gatgcagaaa	ca	agtacg	tc	cgtatgt	at	gtata	actt	caacaaggag	acgcgc	360
ccaggaccgc	ct	gaat	taat	gt	tttctt	cct	ggat	gta	cgatcg	420
atccaggctg	gc	gtc	ggacc	tat	ttc	ggat	cg	aat	atcg	480
agaagaatgg	attt	ggac	ag	caga	attt	ggct	tttga	aggc	tataat	540
cctgatattc	gagg	actg	gaa	at	gt	tgac	ag	aa	agg	600
gcgtgcctgg	ac	gac	catt	ca	ggac	gc	ca	gg	gtcg	660
ctgctgcttc	gc	ctg	ccag	t	ctg	agg	tc	a	atgtctcg	720
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FC-4-1.ST25.txt

<210> 41
<211> 776
<212> DNA
<213> Ctenocephalides felis

<400> 41
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gcgaaacgac cctcttccgc tggatgctgc gtcctgcaat gctcgtccag gcacgcgtaa 180
acctttctc gttaaagcatc cacttcctgt ctacattca gtcctcgaat atcaggatta 240
aacagtatta tagccttcaa acagcctaattctgt ccaaattccat tcttctcatt 300
ttgacactta attctgacag taccgcgtcg aaaataggc cgacgccagc ctggattgca 360
ctattccgat gtaacgtcat accagggaaag aaacacatttta attcaggcggttgc 420
gccccgtctcc ttgttgaagt atcaactagac atactggacg tacttggatc tgcattcggat 480
tctagatact caataacttcttccaggctata gatgctataa gtaattcatt ccaggctgct 540
ctgagtaacg ttacttgatc ctctaattgttcaaaactaa aatgcggcat gcaccttgcg 600
tattgtacta actgatataa ctgtttatgtt gcttgctgac acagactgga tacagggccc 660
ttgttatctag gaggcaccat ggatgaaggt cctactcgca aatattgtat cgacaattcc 720
gggtccgtcg caacatttcg agtttcactc ctttggatcg cttctaaaat tcttcc 776

<210> 42
<211> 943
<212> DNA
<213> Ctenocephalides felis

<400> 42
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cgacgatgac gataaggatc cctctgttcg agatataacg gtagaaagaa ttttagaagc 180
ggaacaaagg agtggaaactc gaaatgtgc gacggacccg gaattgtcga tacaatattt 240
gcgagtagga ctttcatcca tggtgccccc tagatacaag ggcctgtat ccagtctgt 300
tcagcaagca aataaacagt tatatcaggat agtacaatac gcaagggtcga tgccgcattt 360
tagtgctta caatttagagg atcaagtaac gttactcaga gcagcctgga atgaattact 420
tatagcatct atagcctgga gaagtattga gtatctgaa tccgatgcag aaacaagtac 480
gtccagtagt tcttagtgata cttcaacaag gagacgcgtccaccaggac cgcctgaatt 540
aatgtgtttc cttcctggta tgacgttaca tcggatagt gcaatccagg ctggcgtcg 600

FC-4-1.ST25.txt

acctaatttc gatcggtac tgtcagaatt aagtgtcaaa atgagaagaa tggatttggaa	660
cagagcagaa ttaggctgtt tgaaggctat aatactgttt aatcctgata ttgcaggact	720
gaaatgtaga caggaagtgg atgccttacg agaaaaggaa tacgcgtgcc tggacgagca	780
ttgcaggacg cagcatccag cggaagaggg tcgttcgca gccctgctgc ttgcctgcc	840
agctctgagg tcaatctctt tgaaatgtct cgatcacctg ttttcttca gattgattgg	900
cgatacgccg cttgagagtt ttcttgtgaa tttactcgag gcc	943

<210> 43
<211> 943
<212> DNA
<213> Ctenocephalides felis

<400> 43 ggcctcgagt aaatccacaa gaaaactctc aagcggtcgta tcgccaatca atctgaagaa	60
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ggctgcgaaa cgaccctctt ccgctggatg ctgcgtcctg caatgctcgt ccaggcacgc	180
gtaaaccttt tctcgtaaag catccacttc ctgtctacat ttcagtcctc gaatatcagg	240
attaaacagt attatagcct tcaaacagcc taattctgct ctgtccaaat ccattttct	300
cattttgaca cttaattctg acagtacccg atcgaaatta ggtccgacgc cagcctggat	360
tgcactattc cgatgtAACG tcataccagg aaggaaacac attaattcag gcggtcctgg	420
tggagcgcgt ctccttggatg aagtatcact agacatactg gacgtacttg tttctgcattc	480
ggattctaga tactcaatac ttctccaggc tatacatgct ataagtaatt cattccaggc	540
tgctctgagt aacgttactt gatcctctaa ttgtaaagca ctAAAATGCG gcatgcacct	600
tgcgtattgt actaactgat ataactgttt atttgcttgc tgacacagac tggatacagg	660
gcccttgtat ctaggaggca ccatggatga aggtcctact cgcaaataatt gtatcgacaa	720
ttccgggtcc gtcgcaacat ttcgagtttc actccttgc tccgcttca aaatttttc	780
taccgttaaa tctcgAACAG agggatcctt atcgtcatcg tcgtacagat cccgacccat	840
ttgctgtcca ccagtcatgc tagccatacc atgatgtga tgatgtgag aaccccccatt	900
ggtttattcc tccttattta atcgatacat taatataac ctc	943

<210> 44
<211> 21
<212> DNA
<213> Artificial sequence

<220>

FC-4-1.ST25.txt

<223> Synthetic Primer

<400> 44

tgygaaatgg ayatgtayat g

21

<210> 45

<211> 20

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<213> Artificial sequence

<220>

<223> Synthetic Primer

<220>

<221> misc_feature

<222> (15)..(15)

<223> n = unknown

<400> 45

ccyttwgcr aattcnacdat

20

<210> 46

<211> 18

<212> DNA

<213> Artificial sequence

<220>

<223> Synthetic Primer

<400> 46

ggttcccgaa aaccaatg

18

<210> 47

<211> 19

<212> DNA

<213> Artificial sequence

<220>

<223> Synthetic Primer

<400> 47

gccgaaattc aagagctc

19

<210> 48

<211> 18

<212> DNA

<213> Artificial sequence

<220>

<223> Synthetic Primer

<400> 48

gtcaggaatg taggctca

18

FC-4-1.ST25.txt

<210> 49
<211> 20
<212> DNA
<213> Artificial sequence

<220>
<223> Synthetic Primer

<400> 49
aattaaccct cactaaaggg 20

<210> 50
<211> 20
<212> DNA
<213> Artificial sequence

<220>
<223> Synthetic Primer

<400> 50
ggwaaacayt atggwgtwta 20

<210> 51
<211> 18
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<220>
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<220>
<221> misc_feature
<222> (10)..(10)
<223> n = unknown

<400> 51
ttcttcytgn acwhcttc 18

<210> 52
<211> 20
<212> DNA
<213> Artificial sequence

<220>
<223> Synthetic Primer

<400> 52
ttctcgtttc attccacagg 20

<210> 53
<211> 29
<212> DNA
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FC-4-1.ST25.txt

<220>
<223> Synthetic Primer

<400> 53
aaagggaaca aaagctggag ctccaccgc 29

<210> 54
<211> 28
<212> DNA
<213> Artificial sequence

<220>
<223> Synthetic Primer

<400> 54
ttaaaaatatc actgggtcgat atcctccc 28

<210> 55
<211> 26
<212> DNA
<213> Artificial sequence

<220>
<223> Synthetic Primer

<400> 55
ggcggccgct ctagaactag tggatc 26

<210> 56
<211> 23
<212> DNA
<213> Artificial sequence

<220>
<223> Synthetic Primer

<400> 56
agacaatcaa tatcccaagt gcg 23

<210> 57
<211> 27
<212> DNA
<213> Artificial sequence

<220>
<223> Synthetic Primer

<400> 57
ctgcataaaaa tgcctaaagt cgccggac 27

<210> 58
<211> 30
<212> DNA

FC-4-1.ST25.txt

<213> Artificial sequence	
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<223> Synthetic Primer	
<400> 58	
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<210> 59	
<211> 36	
<212> DNA	
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gcggaattct caatccaaa tttcttctaa aaatct	36
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<211> 31	
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gcgggatccc tctgttcgag atttaacggta	31
<210> 61	
<211> 27	
<212> DNA	
<213> Artificial sequence	
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<223> Synthetic Primer	
<400> 61	
gcgaagcttt caaccgatgg gtccgcc	27
<210> 62	
<211> 36	
<212> DNA	
<213> Artificial sequence	
<220>	
<223> Synthetic Primer	
<400> 62	
gcgcccgggg gattaacttt attattaaaa attaaa	36
<210> 63	
<211> 33	

FC-4-1.ST25.txt

<212> DNA
<213> Artificial sequence

<220>
<223> Synthetic Primer

<400> 63

gcgcgcggcc gcaagcttc aaccgatggg tcc

33

<210> 64
<211> 66
<212> PRT
<213> Ctenocephalides felis

<400> 64

Cys Leu Val Cys Gly Asp Arg Ala Ser Gly Tyr His Tyr Asn Ala Leu
1 5 10 15

Thr Cys Glu Gly Cys Lys Gly Phe Phe Arg Arg Ser Val Thr Lys Asn
20 25 30

Ala Val Tyr Val Cys Lys Phe Gly His Thr Cys Glu Met Asp Met Tyr
35 40 45

Met Arg Arg Lys Cys Gln Glu Cys Arg Leu Lys Lys Cys Leu Ala Val
50 55 60

Gly Met
65

<210> 65
<211> 219
<212> PRT
<213> Ctenocephalides felis

<400> 65

Gln Asp Gly Tyr Glu Gln Pro Ser Glu Glu Asp Leu Arg Arg Ile Met
1 5 10 15

Ile Ser Thr Pro Ala Glu Asp Glu Ala Leu Glu Phe Arg His Ile Thr
20 25 30

Glu Ile Thr Ile Leu Thr Val Gln Leu Ile Val Glu Phe Ala Lys Gly
35 40 45

Leu Pro Ala Phe Thr Lys Ile Pro Gln Glu Asp Gln Ile Thr Leu Leu
50 55 60

FC-4-1.ST25.txt

Lys Ala Cys Ser Ser Glu Val Met Met Leu Arg Met Ala Arg Arg Tyr
65 70 75 80

Asp Ala Val Ser Asp Ser Ile Leu Phe Ala Asn Asn Arg Ser Tyr Thr
85 90 95

Arg Asp Ser Tyr Lys Met Ala Gly Met Ala Asp Thr Ile Glu Asp Leu
100 105 110

Leu His Phe Cys Arg Gln Met Tyr Thr Met Thr Val Asp Asn Val Glu
115 120 125

Tyr Ala Leu Ile Thr Ala Ile Val Ile Phe Ser Asp Arg Pro Gly Leu
130 135 140

Glu Gln Ala Asp Leu Val Glu Gln Ile Gln Ser Tyr Tyr Ile Lys Thr
145 150 155 160

Leu Lys Cys Tyr Ile Leu Asn Arg His Ser Gly Asp Pro Lys Cys Gly
165 170 175

Ile Leu Phe Ala Lys Leu Leu Ser Ile Leu Thr Glu Leu Arg Thr Leu
180 185 190

Gly Asn Gln Asn Ser Glu Met Cys Phe Ala Leu Lys Leu Lys Asn Arg
195 200 205

Lys Leu Pro Arg Phe Leu Glu Glu Ile Trp Asp
210 215

<210> 66

<211> 66

<212> PRT

<213> Ctenocephalides felis

<400> 66

Cys Leu Val Cys Gly Asp Arg Ala Ser Gly Tyr His Tyr Asn Ala Leu
1 5 10 15

Thr Cys Glu Gly Cys Lys Gly Phe Phe Arg Arg Ser Val Thr Lys Asn
20 25 30

Ala Val Tyr Val Cys Lys Phe Gly His Thr Cys Glu Met Asp Met Tyr
35 40 45

FC-4-1.ST25.txt

Met Arg Arg Lys Cys Gln Glu Cys Arg Leu Lys Lys Cys Leu Ala Val
50 55 60

Gly Met
65

<210> 67
<211> 219
<212> PRT
<213> Ctenocephalides felis

<400> 67

Gln Asp Gly Tyr Glu Gln Pro Ser Glu Glu Asp Leu Arg Arg Ile Met
1 5 10 15

Ile Ser Thr Pro Ala Glu Asp Glu Ala Leu Glu Phe Arg His Ile Thr
20 25 30

Glu Ile Thr Ile Leu Thr Val Gln Leu Ile Val Glu Phe Ala Lys Gly
35 40 45

Leu Pro Ala Phe Thr Lys Ile Pro Gln Glu Asp Gln Ile Thr Leu Leu
50 55 60

Lys Ala Cys Ser Ser Glu Val Met Met Leu Arg Met Ala Arg Arg Tyr
65 70 75 80

Asp Ala Val Ser Asp Ser Ile Leu Phe Ala Asn Asn Arg Ser Tyr Thr
85 90 95

Arg Asp Ser Tyr Lys Met Ala Gly Met Ala Asp Thr Ile Glu Asp Leu
100 105 110

Leu His Phe Cys Arg Gln Met Tyr Thr Met Thr Val Asp Asn Val Glu
115 120 125

Tyr Ala Leu Ile Thr Ala Ile Val Ile Phe Ser Asp Arg Pro Gly Leu
130 135 140

Glu Gln Ala Asp Leu Val Glu Gln Ile Gln Ser Tyr Tyr Ile Lys Thr
145 150 155 160

Leu Lys Cys Tyr Ile Leu Asn Arg His Ser Gly Asp Pro Lys Cys Gly
165 170 175

FC-4-1.ST25.txt

Ile Leu Phe Ala Lys Leu Leu Ser Ile Leu Thr Glu Leu Arg Thr Leu
180 185 190

Gly Asn Gln Asn Ser Glu Met Cys Phe Ala Leu Lys Leu Lys Asn Arg
195 200 205

Lys Leu Pro Arg Phe Leu Glu Glu Ile Trp Asp
210 215

<210> 68
<211> 66
<212> PRT
<213> Ctenocephalides felis

<400> 68

Cys Ser Ile Cys Gly Asp Arg Ala Ser Gly Lys His Tyr Gly Val Tyr
1 5 10 15

Ser Cys Glu Gly Cys Lys Gly Phe Phe Lys Arg Thr Val Arg Lys Asp
20 25 30

Leu Thr Tyr Ala Cys Arg Glu Asp Arg Asn Cys Leu Ile Asp Lys Arg
35 40 45

Gln Arg Asn Arg Cys Gln Phe Cys Arg Tyr Gln Lys Cys Leu Ala Cys
50 55 60

Gly Met
65

<210> 69
<211> 271
<212> PRT
<213> Ctenocephalides felis

<400> 69

Ser Val Arg Asp Leu Thr Val Glu Arg Ile Leu Glu Ala Glu Gln Arg
1 5 10 15

Ser Glu Thr Arg Asn Val Ala Thr Asp Pro Glu Leu Ser Ile Gln Tyr
20 25 30

Leu Arg Val Gly Pro Ser Ser Met Val Pro Pro Arg Tyr Lys Gly Pro
35 40 45

FC-4-1.ST25.txt

Val Ser Ser Leu Cys Gln Gln Ala Asn Lys Gln Leu Tyr Gln Leu Val
 50 55 60

Gln Tyr Ala Arg Cys Met Pro His Phe Ser Ala Leu Gln Leu Glu Asp
 65 70 75 80

Gln Val Thr Leu Leu Arg Ala Ala Trp Asn Glu Leu Leu Ile Ala Ser
 85 90 95

Ile Ala Trp Arg Ser Ile Glu Tyr Leu Glu Ser Asp Ala Glu Thr Ser
 100 105 110

Thr Ser Ser Met Ser Ser Asp Thr Ser Thr Arg Arg Arg Ala Pro Pro
 115 120 125

Gly Pro Pro Glu Leu Met Cys Phe Phe Pro Gly Met Thr Leu His Arg
 130 135 140

Asn Ser Ala Ile Gln Ala Gly Val Gly Pro Ile Phe Asp Arg Val Leu
 145 150 155 160

Ser Glu Leu Ser Val Lys Met Arg Arg Met Asp Leu Asp Arg Ala Glu
 165 170 175

Leu Gly Cys Leu Lys Ala Ile Ile Leu Phe Asn Pro Asp Ile Arg Gly
 180 185 190

Leu Lys Cys Arg Gln Glu Val Asp Ala Leu Arg Glu Lys Val Tyr Ala
 195 200 205

Cys Leu Asp Glu His Cys Arg Thr Gln His Pro Ala Glu Glu Gly Arg
 210 215 220

Phe Ala Ala Leu Leu Leu Arg Leu Pro Ala Leu Arg Ser Ile Ser Leu
 225 230 235 240

Lys Cys Leu Asp His Leu Phe Phe Arg Leu Ile Gly Asp Thr Pro
 245 250 255

Leu Glu Ser Phe Leu Val Asp Leu Leu Glu Ala Gly Pro Ile Gly
 260 265 270

<210> 70
 <211> 66
 <212> PRT

FC-4-1.ST25.txt

<213> Ctenocephalides felis

<400> 70

Cys Ser Ile Cys Gly Asp Arg Ala Ser Gly Lys His Tyr Gly Val Tyr
1 5 10 15

Ser Cys Glu Gly Cys Lys Gly Phe Phe Lys Arg Thr Val Arg Lys Asp
20 25 30

Leu Thr Tyr Ala Cys Arg Glu Asp Arg Asn Cys Leu Ile Asp Lys Arg
35 40 45

Gln Arg Asn Arg Cys Gln Phe Cys Arg Tyr Gln Lys Cys Leu Ala Cys
50 55 60

Gly Met
65

<210> 71

<211> 271

<212> PRT

<213> Ctenocephalides felis

<400> 71

Ser Val Arg Asp Leu Thr Val Glu Arg Ile Leu Glu Ala Glu Gln Arg
1 5 10 15

a
cont
Ser Glu Thr Arg Asn Val Ala Thr Asp Pro Glu Leu Ser Ile Gln Tyr
20 25 30

Leu Arg Val Gly Pro Ser Ser Met Val Pro Pro Arg Tyr Lys Gly Pro
35 40 45

Val Ser Ser Leu Cys Gln Gln Ala Asn Lys Gln Leu Tyr Gln Leu Val
50 55 60

Gln Tyr Ala Arg Cys Met Pro His Phe Ser Ala Leu Gln Leu Glu Asp
65 70 75 80

Gln Val Thr Leu Leu Arg Ala Ala Trp Asn Glu Leu Leu Ile Ala Ser
85 90 95

Ile Ala Trp Arg Ser Ile Glu Tyr Leu Glu Ser Asp Ala Glu Thr Ser
100 105 110

FC-4-1.ST25.txt

Thr Ser Ser Met Ser Ser Asp Thr Ser Thr Arg Arg Arg Ala Pro Pro
115 120 125

Gly Pro Pro Glu Leu Met Cys Phe Phe Pro Gly Met Thr Leu His Arg
130 135 140

Asn Ser Ala Ile Gln Ala Gly Val Gly Pro Ile Phe Asp Arg Val Leu
145 150 155 160

Ser Glu Leu Ser Val Lys Met Arg Arg Met Asp Leu Asp Arg Ala Glu
165 170 175

Leu Gly Cys Leu Lys Ala Ile Ile Leu Phe Asn Pro Asp Ile Arg Gly
180 185 190

Leu Lys Cys Arg Gln Glu Val Asp Ala Leu Arg Glu Lys Val Tyr Ala
195 200 205

Cys Leu Asp Glu His Cys Arg Thr Gln His Pro Ala Glu Glu Gly Arg
210 215 220

a
cont
Phe Ala Ala Leu Leu Leu Arg Leu Pro Ala Leu Arg Ser Ile Ser Leu
225 230 235 240

Lys Cys Leu Asp His Leu Phe Phe Arg Leu Ile Gly Asp Thr Pro
245 250 255

Leu Glu Ser Phe Leu Val Asp Leu Leu Glu Ala Gly Pro Ile Gly
260 265 270